

Claims 13 and 15 clearly recite that the present invention is directed to a method of switching Internet Protocol (IP) packets at a packet switching system.

Particularly, according to the present invention as recited in claim 13, the method includes allocating a pair including an IP address and a port number in Transmission Control Protocol (TCP) or User Datagram Protocol (UDP) to a virtual channel identifier (VCI) and outputting IP packets whose headers have the IP address and the port number via a VC according to the VCI when the packet switching system receives the IP packets.

Further, according to the present invention if IP packets headers have a certain identical part with previously input IP packets, then the allocated VCI is the same as the VCI allocated to the previously input IP packets. Also, if the certain part of the IP packets headers is different from the previously input IP packets, then the allocated VCI is an idle VCI.

Still further, according to the present invention the VCI is included in a virtual path (VP) and all IP packets are transmitted not according to the VCI but according to a virtual path identifier (VPI) of the IP in an ATM network.

The above described features of the present invention now more clearly recited in the claims are not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, the above described features of the present invention as now more clearly recited in the claims are not taught or suggested by Feldman whether said reference is taken individually or in combination with any of the other references of record.

Feldman teaches a switch apparatus for receiving and transmitting data units each segmented into a series of cells of data including a first cell and a last cell wherein each of the cells of a series includes a label common to all cells of the series. As per Feldman, at least one incoming port is provided for receiving cells of a plurality of series, at least one outgoing port for transmitting cells out of the apparatus with an outbound label, a storage device for storing a series of cells received at each incoming port until the last cell of a series is received and a device for transmitting each of the series cells sequentially from the first cell to the last cell from the storage device to a selected outgoing port. Feldman teaches, for example, in Figs. 6 and 7 thereof that a VC is established between nodes by using various messages including a VC establishment message and a VC acknowledgment message.

However, at no point is there any teaching or suggestion in Feldman of converting the VCI value based on the combination of the destination/source IP address and the port number in TCP or UDP and multiplexing the VCIs into a single VPI so as to transmit a plurality of flows via a single VPI as in the present invention as recited in the claims. Feldman simply discloses the establishment of a VC between the nodes by using messages. Thus, there is no attempt in Feldman to address the problem to which the present invention is directed of using an IP address and a port number so as to route messages in a packet switching system including an ATM network. The present invention as described above accomplishes such by allocating a pair including an IP address and a port number to a VCI and outputting IP packets whose headers have the IP address and port number via a VC corresponding to the VCI when the packet switching system receives the IP packet.

Unique according to the present invention not taught or suggested by Feldman is that all IP packets are transmitted, not according to the VCI, but according to a VPI of the VP in an ATM network.

In the Office Action on page 3 thereof, the Examiner relies on an alleged teaching at col. 16, lines 22-29 of Feldman of allocating channel VC, i.e., port number to VCI. However, in this passage of Feldman, merely describes to allocate VCI. However, at no point in Feldman is there any teaching or suggestion of the use of "the port number", much less the use of "the port number in a TCP or UDP" as in the present invention as recited in the claims. Therefore, Feldman does not teach or suggest the features of the present invention of allocating the pair including the IP address and the port number in TCP or UDP to the VCI as alleged by the Examiner.

In the Office Action on page 3 thereof the Examiner relies on an alleged teaching at col. 4, lines 50-53 of Feldman of the VC being derived from the IP address. However, such is not the case as alleged by the Examiner. In Feldman, the conversion from the IP address to a VCI is accomplished by allocating the lower 16 bits of the IP address in the VCI value as they are. The present invention differs from that taught by Feldman in that according to the present invention the VCI value is converted based on the combination of the destination/source IP address and the port number in TCP or UDP. Thus, according to the present invention a conversion table is provided for realizing the conversion. Such features are clearly not taught or suggested by the Feldman.

On page 4 of the Office Action the Examiner relies on an alleged teaching at col. 16, lines 21-35 and at col. 11, lines 9-20 of Feldman of

allocating the VCI label from that previously learned and allocating a new VCI, and an idle VCI to a new path which is different from the previous path.

However, this teaching of Feldman for the same reasons as set forth above fails to teach or suggest the features of the present invention as now more clearly recited in the claims being that the present invention converts the VCI value based on the combination of destination/source IP address and the port number in TCP or UDP and to accomplish such conversion a conversion table is provided. Such features are clearly not taught or suggested by Feldman.

In page 4 of the Office Action the Examiner alleges that Feldman teaches at col. 4, lines 36-49 a operation of using the VPI for switching cells along the switched connection and keeping the VCI value unaltered. However, this teaching of Feldman is restricted and is not used in the manner alleged by the Examiner in the Office Action. Attention is directed to col. 4, lines 50-53 of Feldman which places a restriction in the process such that "in the later method, VCI is derived from the lower 16 bits of the IP address". Thus, the VCI conversion process taught by Feldman is entirely different from that of the present invention as recited in the claims.

On page 5 of the Office Action the Examiner alleges that Feldman teaches at col. 22, lines 49-55 the use of TCP protocol and VC including source and destination addresses in a TCP session so as to determine the VC path. However, this teaching of Feldman is entirely different from that of the present invention since the present invention does not use a TCP session but instead uses the port number of a TCP. As such, the present invention differs from that taught by Feldman.

Thus, Feldman fails to teach or suggest allocating a pair including an IP address and port number in TCP or UDP to a VCI and outputting IP packets whose headers have the IP address and the port number via a VC corresponding to the VCI when the packet switching system receives the IP packets as recited in the claims.

Further, Feldman fails to teach or suggest that if IP packets headers have a certain part identical with previous input IP packets, then the allocated VCI is the same as a VCI allocated to the previously input packets, and if the certain part of the IP packet headers is different from the previously input IP packet, then the allocated VCI is an idle VCI as recited in the claims.

Still further, Feldman fails to teach or suggest the VC is included in VP and all IP packets are transmitted, not according to the VCI, but according to a VPI of the VP in an ATM network as recited in the claims.

Therefore, Feldman fails to teach or suggest the features of the present invention as recited in the claims and as such does not anticipate nor render obvious the claimed invention. Accordingly, reconsideration and withdrawal of the 35 USC §102(e) rejection of claims 13-17 as being anticipated by Feldman is respectfully requested.

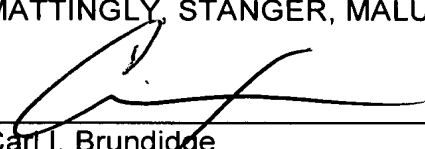
The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the reference utilized in the rejection of claims 13-17.

In view of the foregoing amendments and remarks, applicants submit that claims 13-17 are in condition for allowance. Accordingly, early allowance of claims 13-17 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (520.36259CX1).

Respectfully submitted,

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